

What is PA 6 GC MO

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PA 6, special compound GC MO

PA 6 GC MO is a special compound based on polyamide 6 (GC compound) additionally sliding-modified with molybdenum disulfide (MoS₂) as a solid lubricant. The combination of GC compound and MoS₂ sliding modification particularly improves sliding and emergency-running properties as well as heat deflection temperature compared to standard PA6.

Properties

PA 6 is a semi-crystalline engineering thermoplastic with high toughness, good abrasion and wear resistance, and good sliding properties. The MoS₂ embedded in the GC compound acts as a solid lubricant and further improves sliding behaviour and emergency-running properties; at the same time, heat deflection temperature increases noticeably compared to standard PA6.

Like all polyamides, PA 6 GC MO absorbs moisture from the environment; this makes the material tougher and more impact-resistant, while stiffness and dimensional stability decrease somewhat.

Advantages

- Combination of GC compound and MoS₂ sliding modification
- Significantly improved sliding and emergency-running properties through MoS₂
- Increased heat deflection temperature compared to standard PA6
- Good machinability

Disadvantages

- Moisture absorption up to 3 % in standard atmosphere, causing dimensional and property changes
- Not resistant to strong acids and permanently hot water (hydrolysis)
- Not generally declared for food contact (see FDA declaration)

Processing

PA 6 GC MO can be machined like standard PA6 using all conventional cutting methods (sawing, turning, drilling, milling, planing, grinding); HSS or carbide tools are sufficient. The embedded MoS₂ sliding modification has a favourable effect on machining, as it reduces friction and the tendency to form built-up edges; good cooling via chip removal remains important to avoid softening or smearing of the surface caused by heat build-up.

Because of moisture absorption and thermal expansion, we take swelling and shrinkage behaviour into account for tight tolerances and condition the semi-finished product where required.

Typical Applications

PA 6 GC MO is used wherever heavily loaded sliding and guide elements are required and service life must be ensured even under limited lubrication, for example in general mechanical engineering and material handling.

- Plain bearings and bushings under high load
- Guide elements and wear parts in mechanical engineering
- Components with emergency-running properties under limited lubrication
- Gears and cam discs with increased thermal load

Typical Properties

- Combination of GC compound and MoS₂ sliding modification
- Improved heat deflection temperature

Product Examples

- Plain bearings and bushings
- Guide and wear parts
- Gears and cam discs
- Emergency-running components

Typical Industries

- Mechanical Engineering
- Mechanics
- Material Handling
- Construction

	Test Method	Unit	Value
General Properties			
Density	DIN EN ISO 1183-1	g / cm ³	1.14
Water absorption	DIN EN ISO 62	%	3.00
Flammability (Thickness 3 mm / 6 mm)	UL 94		HB / HB
Mechanical Properties			
Yield stress	DIN EN ISO 527	MPa	80
Elongation at break	DIN EN ISO 527	%	>40
Tensile modulus of elasticity	DIN EN ISO 527	MPa	3.200
Notched impact strength	DIN EN ISO 179	kJ / m ²	>3.0
Ball indentation hardness	DIN EN ISO 2039-1	MPa	180
Shore hardness	DIN EN ISO 868	scale D	82
Thermal Properties			
Melting temperature	ISO 11357-3	°C	220
Thermal conductivity	DIN 52612-1	W / (m·K)	0.23
Thermal capacity	DIN 52612	kJ / (kg·K)	1.70
Coefficient of linear thermal expansion	DIN 53752	10 ⁻⁶ / K	80
Service temperature, long term	Average	°C	-40 ... 95
Service temperature, short term (max.)	Average	°C	160
Heat deflection temperature	DIN EN ISO 75, Verf. A, HDT	°C	95